CERTIFICATION FOR INSPECTION AND MAINTENANCE OF STORMWATER BMPS
TEST QUESTIONS
DEP – JANUARY 2010

This is a multiple-answer test but there is only one correct answer for each question. Chose the answer that is most correct!

Send or fax the answer sheet to:
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1. As slopes get steeper, the length of buffers must generally be:
   A. Shorter
   B. Longer
   C. Buffer length does not need to be adjusted with slope
   D. None of the above

2. Forested buffers benefit water quality by:
   A. Slowing surface water down so it loses energy and drops sediment
   B. Providing shade for the waterbody, which lowers water temperatures
   C. Providing habitat for fish when trees from the buffer fall into the water
   D. All of the above

3. Trees should never be harvested in the buffer area:
   A. True
   B. False

4. Studies show streams flowing through forests are usually _____ than streams in non forested areas
   A. Deeper
   B. Faster moving
   C. Richer in habitat
   D. Narrower

5. The 50% rule of thumb states that: (kk)
   A. No more than 50% of the trees in a buffer should be cut
   B. Buffers are only needed on 50% of streams
   C. Buffers are needed on slopes 50% or greater
   D. None of the above

6. Dredging a wetpond is necessary for it to operate as designed if:
   A. Slope stabilization vegetation is lost
   B. Invasive plants take over
   C. Sediment accumulation reduces storage volume
   D. Debris block the outlet structure

7. What are the visual signs that indicate the need for wetpond rehabilitation?

A. A high permanent pool level several days after a storm
B. A drawdown to below the design permanent pool level a few days after a storm
C. Aquatic plants are growing out into the center of the pond
D. All the above

8. A wetpond outlet structure must be maintained or replaced if:
   A. It is totally clogged with leaf litter
   B. The pipe is eroding out
   C. The structure is floating
   D. All the above

9. A clogged orifice within a pond's outlet control structure will cause:
   A. Water to back-up into the inlet pipe preventing adequate up-gradient drainage
   B. Overtopping of the pond's emergency spillway
   C. An increase in the drawdown time of the channel-protection volume through the wetpond's underdrained gravel trench outlet
   D. All the above

10. There is evidence of soil piping along the wetpond's outlet pipe:
    A. It is bad construction
    B. It is bad engineering design
    C. It is a lack of maintenance
    D. It doesn't matter, repairs are necessary

11. What is acceptable stabilization on a pond embankment?
    A. Regularly mowed grass with some bare spots
    B. Riprap with emergent trees and shrubs
    C. Weedy meadow grass
    D. Purple loosestrife, it is invasive but pretty

12. What is the most neglected area of a wetpond?
    A. The plunge pool at the forebay
    B. The outlet structure
    C. The downstream face of the embankment
    D. The upstream face of the embankment

13. A wetpond has obviously lost capacity. As an inspector what do you need to do?
    A. Report it to the owner and include a description/photographs in the inspection report
    B. Instruct the owner to schedule dredging
    C. Consider that it will be acceptable for another several years
    D. A and B

14. As a third party inspector, what will potentially be the most irritating aspect of inspecting a wetpond?
    A. The access is overgrown with vegetation or non existent
    B. The embankment is too steep to access the outlet structure
    C. There is no legal access easement

D. All of the above

15. A beaver lodge is apparent against the embankment of the pond. As a third party inspector what do you do?
    A. Take a photo of the little fellow
    B. Recommend trapping and ask for the fur
    C. Recommend the installation of a beaver deceiver
    D. Recommend that all nearby trees are removed to eliminate the food source

16. What must be included in an inspection report to the owner?
    A. A list of the problems found and the needed corrective actions
    B. Photographs
    C. A letter stating that the site was visited and inspected
    D. All the above

17. Who can identify problems with the operational effectiveness of a BMP?
    A. A professional engineer
    B. Municipal CEO or road maintenance crew
    C. The owner of the facility or a concerned neighbor
    D. All the above

18. What is the most important item when inspecting a wetpond?
    A. Hip boots to go in the water to check the outlet for clogging
    B. Engineered design and drawings for the wetpond
    C. The name of the contractor who built the structure
    D. A flashlight to see into the riser structure

19. What could the most critical operational features of an infiltration basin?
    A. That the accumulated sediment are removed
    B. That the vegetation is healthy and is mowed annually
    C. That the outlet structure is free flowing and clear of debris
    D. That the filter media fine content was correct when installed

20. What must be provided in an inspection report for a site that contains multiple BMPs?
    A. Whether the roadside swales are stable, vegetated and free from debris
    B. The name of the maintenance contractor for the facility
    C. Whether buffers were altered
    D. All the above

21. What may be required maintenance of ditches on a 5-10 year cycle?
    A. Mow ditch and clear culvert outlets of debris
    B. Regrade the swale bottom and reestablish the vegetative cover
    C. Remove false berms along road shoulder
    D. All the above

22. What should be done when small trees are growing on the embankment of a wetpond?

A. Do nothing, it is stable and not interfering with anything
B. Cut the down trees to at or near ground level
C. Cut the trees and remove the stumps
D. Use lots of herbicide and leave the trees in place

23. When should the maintenance of a stormwater management BMP include a DEP permit modification?
    A. When reforming a ditch
    B. When removing sediment from a filter basin and replacing the filter media
    C. When replacing a failed outlet structure to the original design specifications
    D. When re-orienting a pond's discharge outlet to prevent reoccurring erosion

24. The Maine erosion control law requires that all chronic erosion problems be addressed:
    A. Everywhere in the state of Maine by 2010
    B. Only in most-at-risk lake watersheds
    C. Only during construction
    D. It is no longer applicable

25. How can you determine whether a filter basin isn't draining properly?
    A. Staining of the filter media by anaerobic decomposition
    B. Checking 2 days after a rain event for standing water
    C. The basin is full of water and there is no discharge from the underdrain pipe
    D. All the above

26. What needs to be done when there is visible siltation of the filter media in a filtration basin?
    A. Excavate and replace all the filter media
    B. If it's draining properly ignore it; otherwise, roto-till the surface and reestablish a grass cover
    C. Remove as much of the sediment as possible and reestablish a grass cover
    D. Cover the sediment with new mulch and re-establish vegetation

27. Your client is purchasing a new facility that has a DEP permit and the former owner never maintained any of the BMPS. What is your first step?
    A. Compare the engineering design as approved by the DEP with the facility actually built on the site
    B. Hire an engineer to evaluate all BMPs
    C. Require the current owner to certify that all BMPs are maintained and functioning as intended prior to purchase
    D. All of the above

28. An infiltration basin is right in the middle of the development and the owner is parking all his mowing equipment within the structure. As a third party inspector what do you do?
    A. Don't worry about it since they are only used in the summertime
    B. Report it on the Maintenance Inspection report

C. Recommend the owner to get a DEP permit amendment to establish a new equipment storage location.
D. B and C

29. What is the appropriate rehabilitation for a filter basin that is overgrown with woody vegetation?
    A. Use a tractor-mounted bushhog to remove trees and other woody vegetation
    B. Do nothing as it is well vegetated and can function several more years
    C. Remove woody vegetation manually using a hand-held brush cutter, chainsaw, string trimmer or shear/clipper
    D. Replace the filter media

30. No vegetation is growing within a filter media basin. What needs to be done?
    A. Remove and replace the full thickness of the media
    B. Roto-till, seed and much the filter media surface
    C. Do nothing as it is draining well
    D. Apply some fertilizer

31. Based on the DEP permit for a facility, the project was never completed. What needs to be done?
    A. Include existing conditions in the inspection report
    B. Ignore it, the permit is still current
    C. Instruct the owner that future construction of the permitted structures may need a new DEP permit.
    D. A and C

32. The stormwater management rules require that 5, 10, 15…. years from the permit date, a project must be recertified and that a report be provided to the DEP identifying that
    A. All areas of the project are stable and erosion free
    B. All stormwater management structures are maintained and operating as designed
    C. That a maintenance log is kept up-to-date and maintenance actions followed through.
    D. All the above

33. Each facility owner should be able to produce a maintenance plan and keep an inspection maintenance log of the facility for the last 3 years.
    A. True
    B. False

34. Why do BMPs need to be maintained?
    A. Because the DEP requires it
    B. Because without maintenance, BMPs will eventually fail
    C. Because winter sand is known to clog BMPs
    D. All the above

35. As a third party inspector what is the most common maintenance issue you may experience?
    A. Difficulty cleaning the BMP without the expense of complete renovation
    B. Lack of ability to see if the system is full
    C. Lack of understanding of maintenance needs by owner
    D. All the above

36. Why do BMPs need to be maintained?
    A. To increase its storage volume and decrease its pollutant removal efficiency
    B. To re-establish its storage volume and increase its pollutant removal efficiency
    C. To lower its long-term maintenance cost
    D. Both B and C

37. Pre-treatment devises are important because
    A. They are designed to self-clean during a very large storm
    B. They can be designed to remove several pollutants such as sediment, oil and grease
    C. They are designed to by-pass when the structure is full
    D. All the above

38. A BMP operation and maintenance plan:
    A. Lists all BMPs and their installation cost
    B. Should outline labor requirements and maintenance frequency
    C. Is of no concern to the owner and is only needed for the DEP Permit
    D. All the above

39. A BMP maintenance plan:
    A. Should be specific to the project
    B. Should specify inspection frequency and anticipated BMP maintenance requirements
    C. Should be understood and endorsed by the owner
    D. All the above

40. The maintenance needs for a large parking lot should include:
    A. Sweeping the parking lot with a vacuum sweeper at least once per year
    B. Nothing, rain and snow melt will wash them clean
    C. Sweeping the sediments to an unused corner and left there
    D. Using only salt, to cut down on the sediments and eliminate sweeping requirements

41. The long-term maintenance for meadow buffers is to?
    A. Let them revert to forest over time
    B. Mow them no shorter than 6 inches and not more than once a year
    C. Create wildlife habitat
    D. All the above

42. Culverts should be
    A. Clear of winter sand accumulation and of vegetation growing in its plunge pool

B. Its outlet should be well above its plunge pool so it can clear itself
C. Clear of sediment and with both ends stabilized with either riprap or vegetation
D. All the above

43. The 5-year recertification requires that:
    A. All stormwater BMPs are stable and operating as intended
    B. All stormwater BMPs have been upgraded and replaced
    C. All stormwater BMPs are constructed as designed
    D. All the above

44. The 5-year recertification of stormwater management structures:
    A. Should be conducted independent of discussions with area residents to avoid bias
    B. Should include field reconnaissance to identify drainage patterns
    C. Can be completed at off-site locations with the benefit of Google and published resource data
    D. Has been simplified through Chapter 500 Regulations

45. Water quality enhancements as required by Chapter 500 Regulations:
    A. Reduce the hydraulic head required for the systems to function
    B. Present challenges to design due to hydraulic head limitations some of which can be met through innovative designs
    C. Require the groundwater table to be lowered
    D. Save money and allow development density to be increased

46. Stormwater systems design requires:
    A. Geotechnical input to the design process
    B. Soil Scientist input to the design process
    C. Client input into the solution
    D. All of the above

47. Stormwater BMPs must be designed for winter conditions because:
    A. It is not a concern due to global warming and climatic change
    B. They need storage for winter sand and can not flush sediment into the treatment filters
    C. It is not important if the area is used for snow storage since the snow protects the system from freezing
    D. They pose challenges that are of concern to the designer

48. Chapter 500 compliant stormwater systems:
    A. Often require special provisions for bypass during construction
    B. Have reduced life cycle costs since O&M is essentially eliminated
    C. Are of concern since they promulgate West Nile virus
    D. All of the above

49. What qualifications should a post construction stormwater inspector have?

A. Professional engineering license, degree in environmental science, or other demonstrated training or experience as approved by the municipality or permit writer
B. Practical knowledge of erosion control practices and stormwater hydrology
C. Ability to read, understand, and articulate permit conditions to owner and operator concerning BMP deployment and stormwater management
D. All of the above

50. In general, the best time to conduct a BMP inspection is?
    A. In the winter time
    B. At a prearranged time of the day and week agreeable to all parties
    C. Preferably during or shortly after a rain event
    D. All the above

51. When should inspections be performed?
    A. When there is no snow on the ground
    B. At the request of the owner, operator or developer
    C. Over several visits if necessary.
    D. All the above

52. Whom does the stormwater inspector answer to?
    A. The owner or contract writer
    B. The site contractor and the design engineer because their craftsmanship may be commented on
    C. The DEP under the 5-year recertification requirement
    D. All the above

53. Choose all that apply to being a stormwater inspector?
    A. A stormwater inspector needs liability insurance
    B. The stormwater inspector decides which BMPs are in compliance and which BMPs require maintenance
    C. The stormwater inspector should report unsafe site conditions and offer solutions to the owner or operator
    D. All of the above.

54. Which of the following treatment process in a wetpond insures that the discharge will be at or near ambient soil temperatures?
    A. Sedimentation action
    B. Filtration action through soil into tile pipes
    C. Biological metabolic action
    D. Various chemical reaction actions

55. Which type of embankment cracking is most critical to dam safety?
    A. Longitudinal – along the length of the dam
    B. Transverse – perpendicular to the CL of the dam
    C. Transverse – along the CL of the principal spillway
    D. All the above

56. Which embankment seepage problem is important to embankment stability?
    A. Softness on lower portions of the downstream slope of the dam
    B. Boils or underwater "ant hills" at the downstream toe
    C. Sink holes around the outside of the intake structure, or anywhere along the upstream face of the dam
    D. All of the above

57. What is the proper micro-topography of a buffer?
    A. Flow paths within the buffer that will converge after 200 feet
    B. A buffer that is sufficiently steep so that runoff will never have a chance to pool
    C. A surface floor where the flows will remain well distributed
    D. Multiple channels where runoff can concentrate

58. Level spreaders discharging to a buffer should:
    A. Allow overflow at the end of the spreader
    B. Be made of riprap, the larger size the better
    C. Be on the contour line and level
    D. All the above

59. A roadside buffer adjacent to the down gradient side of the road:
    A. Disperses runoff from the ditch
    B. Cannot be on a slope steeper than 20 % or in wetland
    C. Is sized is based on soil type
    D. All the above

60. The proper design for a ditch turnout buffer is:
    A. To treat up-gradient areas at the end of a road cross culvert
    B. To not size it based on soil type
    C. To size it based on the length of road draining to it
    D. To have it drain to a wetland

61. Pollutants of concern at a facility may include:
    A. Trash and litter
    B. Fugitive dust and soil
    C. Oil dripping from construction equipment
    D. All the above

62. What is considered a non-stormwater discharge?
    A. Snow melt saturated with salt and sand
    B. Truck washing
    C. Sheet flow across a commercial business' parking lot
    D. Roof runoff onto the landscape of a building's foundation

63. Stormwater underdrained basins are useful for?
    A. Snow storage during the winter and a playground in the summer
    B. Detaining water so it has time to drop its sediment load
    C. Filtering runoff through a very specific filter media
    D. All the above

64. During a catch basins inspection oil/water booms are observed, what do you do?
    A. Remove them and toss them in the trash because the site was built 5 years ago
    B. Do nothing because they must be there for a good purpose
    C. Document occurrence on the inspection and notify the owner that the DEP has requirements for proper disposal
    D. Remove them and replace them

65. Proper Catch basin maintenance should include:
    A. Removal of sediments prior to the sediment level reaching the bottom of the outlet pipe
    B. Annual inspections
    C. Proper disposal of sediments and other contents in accordance with State law
    D. All the above

66. Winter sand should be removed annually and disposed of appropriately:
    A. From parking lots and access road
    B. From within roadside ditches
    C. Along road shoulders
    D. All the above

67. What is required to fix an obvious slump along a wetpond embankment?
    A. Over-excavate the slump and replace with compacted material containing a lot of fines
    B. Add riprap on top and remove the sediments from the buffer below
    C. Dump a truck load of fill and cover with much and seed
    D. Do nothing, it is bound to reach an equilibrium

68. For the 5-year maintenance recertification:
    A. The erosion control law does not apply
    B. Problems encountered should not be reported, it may make the design engineer look bad
    C. Both A and B
    D. None of the above

69. The responsibility of the owner once he/she has your report is to:
    A. Fix all identified problems
    B. Report to the DEP the outcome of the inspection
    C. Continue routine inspections and maintenance and keep a log
    D. All the above

70. What are the functions of a buffer?
    A. Interception and uptake of runoff
    B. Increase surface roughness
    C. Reduce the velocity of stormwater runoff and increase the quality of stormwater runoff
    D. All of the above

71. What is NOT an appropriate stormwater treatment buffer?
    A. An area down gradient of a road that has been deeded as a buffer
    B. A buffer that is not identified on the project's design plans
    C. A buffer which receives less than 150 feet of sheet flow through a development
    D. An area down gradient of a water quality designed level spreader

72. Your client is purchasing a new facility that has a DEP permit and the former owner never maintained the BMPS. What is your first step?
    A. Compare the engineering design as approved by the DEP with what is found on site
    B. Drain the wetponds to inspect outlets and remove sediments
    C. Sweep parking lot and clean catchbasins
    D. All the above.

73. What needs to be done when there is visible siltation of the filter media in a filtration basin?
    A. Excavate and replace all the filter media
    B. Ignore it if it is draining appropriately; otherwise roto-till and reseed
    C. Collect and remove as much of the sediment as possible and reestablish a vegetated cover
    D. Cover over sediment with new mulch and re-establish vegetation

74. The spillway on the berm of a wetpond always seems to be running. Is this a problem?
    A. Yes, the outlet structure has collapsed or failed
    B. No, the plans indicate that it is the only outlet
    C. Yes, the drainage to the pond has been altered and the pond is receiving more flow than designed for
    D. All the above

75. Why am I trying to obtain this certification as a qualified post construction stormwater inspector?
    A. to meet the requirement of the Stormwater management rules, Chapter 500
    B. To gain training certification credits for my professional license
    C. To meet the conditions of the MS4 program and to be able to inspect facilities in municipalities requiring this certification
    D. All the above